

WHAT IS CLAIMED IS:

1. A reflection mask blank for EUV exposure, comprising:
 a substrate;
 a multilayer film formed on the substrate to reflect EUV light;
 an intermediate layer formed on the multilayer film; and
 an absorber layer formed on the intermediate layer to absorb the EUV light;

the intermediate layer being formed by a material containing Cr and at least one element selected from the group consisting of N, O, and C.

2. A mask blank as claimed in claim 1, wherein:
 the absorber layer is formed by a material containing Ta.

3. A reflection mask for EUV exposure, comprising:
 a substrate;
 a multilayer film formed on the substrate to reflect EUV light;
 an intermediate layer formed on the multilayer film;
 an absorber layer provided with a pattern and formed on the intermediate layer to absorb the EUV light;
 the intermediate layer being formed by a material containing Cr and at least one element selected from the group consisting of N, O, and C.

4. A mask as claimed in claim 3, wherein:
 the absorber layer is formed by a material containing Ta.

5. A method of producing a reflection mask for EUV exposure by the use of the reflection mask blank for EUV exposure claimed in claim 1 or 2.

6. A method of producing a semiconductor device, comprising the steps of:

transferring a pattern on a semiconductor substrate by the use of the reflection mask for EUV exposure claimed in claim 3 or 4.